Commonwealth of Kentucky
Division for Air Quality

PERMIT STATEMENT OF BASIS

DRAFT
Title V, Operating
Permit: V-08-046
AGC Flat Glass North America, Inc - Richmond Plant
Richmond, Kentucky 40475
February 18, 2009
Herbert Campbell, Reviewer

SOURCE ID:	21-151-00064
AGENCY INTEREST:	2796
ACTIVITY:	APE20080001

SOURCE DESCRIPTION:

The Division received an application for the renewal of the operating Title V Permit (V-03-055 R1), from the source, AGC Flat Glass North America, Inc., on November 3, 2008. AFG Industries produces flat glass using the float process. Flat glass manufacturing operations consist of: the raw material handling, the melting furnace, the float or tin bath, the annealing lehr, the cutting and packaging section, the cullet return system, auxiliary services, and the emergency generator.

AFG Industries, Inc., is located on a site 6 km south of Richmond, Kentucky. The facility produces 600 tons per day of flat glass, which can be used for a number of applications including automobile windshields, architectural windows, appliances (stove, refrigerator glass), and decorative glass among other use types.

The Division received an application for a change of ownership from AGC Flat Glass North America, Inc. on September 18, 2007. Pursuant to 401 KAR 52: 020, Section 13, this modification was an administrative change which did not warrant a significant revision. Two 502 B10 activities including oil/water separator and dust collector for automated glass stacker that were approved on April 13, 2007 and July 17, 2007, and have added to Section C of the permit.

APPLICABLE REGULATIONS:

401 KAR 51:017, Prevention of significant deterioration of air quality;
401 KAR 59:010, New Process operations;
401 KAR 60:005, Section (3)(1)(kk), Standards of performance for glass manufacturing plants incorporating by reference 40 CFR 60, Subpart CC, applies to the glass melting furnace;
401 KAR 63:021, Existing sources emitting toxic air pollutants;
401 KAR 63:020, Potentially Hazardous Matter or Toxic Substances.

Emission Unit: 01 (P1) Raw Material Handling, 1998

The equipment includes an unloading hopper, storage silos, weighing and mixing equipment, and distribution conveyors for mix of materials for the melting furnace.

Pursuant to 401 KAR 51:017, emissions of particulate matter shall not exceed the following limitations:

Machine Point 1:	0.137 pound/hour
Machine Point 2:	0.429 pound/hour
Machine Point 3:	0.154 pound/hour
Machine Point 4-13:	0.021 pound/hour, each
Machine Point 14	0.060 pound/hour
Machine Point 15	0.004 pound/hour
Machine Point 16-18	0.009 pound/hour, each

Pursuant to 401 KAR 59:010, Section 3(1), the visible emissions from the each exhaust vent shall not equal or exceed 20 percent opacity.

Pursuant to 401 KAR 52:020, Section 26, the permittee shall read the opacity of emission from exhaust vent by Reference Method 9 on a monthly basis.

Pursuant to 401 KAR 50:055, the permittee shall assure continuing compliance with the particulate emission and opacity limitations by ensuring proper operation of baghouses.

Pursuant to 401 KAR 51:017 and 401 KAR 52:020, Section 26, the permittee shall monitor and record the amount of raw material (pounds or tonnage) handled on a daily basis. The permittee shall also maintain, and operate according to manufacturer's specifications a monitoring device for the measurement of the pressure drop across the fabric filter (baghouses #1-13). Fabric filters (baghouses #1 -18) shall be inspected monthly to ensure that there are no broken/torn bags

Emission Unit: 02 (P2): Melting Furnace rated @ 200 MMBtu/hr, 1998

Pursuant to 401 KAR 51:017, the permittee shall limit the flat glass production to 600 tons/day with fuel restricted to natural gas, and salt cakes usage to 10 pounds per 1000 pounds of sand.

Pursuant to 401 KAR 51:017, the permittee shall recycle all cullet to reduce the raw material required to produce a ton of salable glass.

Pursuant to 401 KAR 63:020, persons responsible for a source from which hazardous matter or toxic substances may be emitted shall provide the utmost care and consideration, in the handling of these materials, to the potentially harmful effects of the emissions resulting from such activities. No owner or operator shall allow any affected facility to emit potentially hazardous matter or toxic substances in such quantities or duration as to be harmful to the health and welfare of humans, animals and plants.

Pursuant to 401 KAR 60:005 and 401 KAR 51:017, emissions of particulate matter shall not exceed 1.0 pound per ton of glass production and a maximum of 25.0 pounds/hour.

Pursuant to 401 KAR 51:017, sulfur dioxide (SO_2) emissions shall not exceed 2.0 pounds per ton of glass production and a maximum of 50.0 pounds/hour based on a 24-hour average.

Pursuant to 401 KAR 51:017, nitrogen oxides (NO_x) emissions shall not exceed 7.0 pounds per ton of glass production and a maximum of 175 pounds/hour, on a 30-day rolling average.
To preclude applicability of 401 KAR 51:017, the permittee has self-imposed a sulfuric acid emission limitation of 1.59 pounds/hour based on a 24-hour average.

Pursuant to 401 KAR 60:005, Section (3)(1)(kk), incorporating by reference 40 CFR 60.293(c), the visible emissions from the furnace stack shall not exceed the opacity standard of 13.42 percent set during the performance test, which is based on upper confidence level of 99%.

Pursuant to 401 KAR 63:021, selenium emission shall not exceed 20 pounds/hour.
Pursuant to 401 KAR 63:021, cobalt emission shall not exceed 200 pounds/year.
Pursuant to 401 KAR 63:021, nickel oxide emission shall not exceed 2.29 pounds/hour.

Pursuant to 401 KAR 50:045, performance tests to demonstrate compliance with particulate matter and sulfur dioxide emissions shall be conducted annually.

Pursuant to 401 KAR 50:045, and to satisfy the requirement of 401 63:020, the permittee shall perform testing and report the results to the Division at the same time as the performance test to determine emission rates for chromium, cobalt, nickel oxide and titanium, which are emitted by the melting furnace for use in SCREEN3 and if needed more refined modeling using models approved by the Division to determine levels of concern (LOC) of these emissions.

The permittee shall assure compliance with the allowable particulate emissions using the method specified in 401 KAR 60:005, Section (3)(1)(kk), incorporating by reference 40 CFR 60.296.

Pursuant to 401 KAR 60:005, Section (3)(1)(kk), incorporating by reference 40 CFR 60.293(c), the permittee shall maintain, and operate a continuous monitoring system for the measurement of the opacity of emissions discharged into the atmosphere from the affected facility.

Pursuant to 401 KAR 51:017, the permittee shall use a continuous emission monitoring (CEM) system for the measurement of nitrogen oxides emissions from the furnace.

Pursuant to 401 KAR 60:005, Section (3)(1)(kk), incorporating by reference 40 CFR 60.293(c), the permittee shall maintain, and operate a continuous monitoring system for the measurement of the opacity of emissions discharged into the atmosphere from the affected facility.

Pursuant to 401 KAR 52:020, Section 26, the permittee shall monitor and record the daily glass production rate (tonnage) and hours of operation of the furnace. The amount of each raw material feed (weight of each raw material in pounds or in tons) to the furnace shall be monitored and recorded on daily basis.

Pursuant to 401 KAR 52:020, Section 26, the permittee shall monitor and record the amount of natural gas burned daily, sulfur fed to the furnace based on the daily amount of salt cake usage information.

HAZARDOUS AIR POLLUTANTS: FROM THE MELTING FURNACE

The Division for Air Quality (Division) has performed air dispersion model screening of potentially hazardous substances that may be emitted by the facility based upon the process rates, material formulations, stack heights and other pertinent information provided by the applicant. The following is a summary of the potentially hazardous substances upon which screening was performed, the modeled worst case impacts, and the level of concern (LOC) that triggers additional review and/or more detailed modeling.

Pollutant	Emissions Rate (lbs/hour)	SCREEN3 Result (ug/m^3)	Convert to annual (ug/m^3)	LOC (ug/m^3)
Chromium	0.44	0.1132	0.0091	0.000083
Cobalt	0.38	0.09564	0.0099	0.01
Nickel Oxide	2.29	0.5758	0.0461	0.01
Titanium	3.54	0.89	0.0712	0.01

Based on the results of the screening analysis the Division has including testing requirements in the permit for chromium, cobalt, nickel oxide and titanium, which are emitted by the melting furnace. Emission rates determined by testing shall be used in SCREEN3 and reported to the Division at the same time as the results of the performance tests. If the predicted annual concentrations exceed the levels of concern (LOC) for either pollutant, the permittee shall conduct more refined modeling using models approved by the Division. If the predicted concentrations for chromium, cobalt, nickel oxide and titanium exceed their respective LOC, within 90 days of the stack test, the permittee shall propose a plan to reduce the chromium, cobalt, nickel oxide or titanium emissions below it's respective LOC or provide evidence that the permittee is not emitting potentially hazardous matter or toxic substances in such quantities or duration as to be harmful to the health and welfare of humans, animals and plants [401 KAR 63:020].

Until new information is gathered from the compliance test that shall be performed within one year from issue of the final permit (V-08-046) emission factors derived from compliance testing are to replace the emission factor currently listed in the permit, and shall be used to calculate future emissions.

Emission Unit: 03 (P3) Annealing Lehr, 1998

The equipment includes rollers, electric heating elements, fans, tube heat exchangers, and SO_2 application equipment that is a roller hearth oven to cool the glass ribbon.

Pursuant to 401 KAR 51:017, emissions of sulfur dioxide shall not exceed 0.106 lb/hour.

Pursuant to 401 KAR 51:017, the permittee shall monitor and record sulfur dioxide usage rate on daily basis.

Emission Unit: 04 (P4) Cutting Line, 1998

Glass exits the lehrto the cutting line where defects are marked and removed as well as the glass being scored, cut and packed for storage.

Pursuant to 401 KAR 51:017, the permittee shall monitor and record the amount of cutting oil and thinner on daily basis.

Emission Unit: 05 (P5) Cullet Return System, 1998

Breaking and conveying system for the trimmed and rejected glass to be reused in the glass process.

Pursuant to 401 KAR 51:017, emissions of particulate matter shall not exceed 0.031 pound/hour.

Pursuant to 401 KAR 59:010, Section 3(1), the visible emission from the stack shall not equal or exceed 20 percent opacity.

The permittee shall assure continuing compliance with the particulate emission and opacity limitations by ensuring proper operation of baghouses.

Pursuant to 401 KAR 51:017, the permittee shall monitor and record the pressure drop across the fabric filter. Also, fabric filter inspections shall be done on a month basis for broken/torn bags, and the amount of cullet returned and hours of operation monitored and recorded on a daily basis.

Emission Unit: 06 (P8) Emergency Diesel Generator rated @ 1950 Hp, 1998

Pursuant to 401 KAR 51:017, the permittee shall limit the operation of the emergency diesel generator to 500 hours/year.

Pursuant to 401 KAR 51:017, emissions of particulate matter shall not exceed 0.341 ton/year.

Pursuant to 401 KAR 51:017, emissions of sulfur dioxide shall not exceed 0.79 ton/year.

Pursuant to 401 KAR 51:017, emissions of nitrogen oxides shall not exceed 11.7 tons/year.

Pursuant to 401 KAR 52:020, Section 26, the permittee shall monitor and record the fuel usage rate and the hours of operation of the affected facility on a monthly basis.

Pursuant to 401 KAR 52:020, Section 26, the permittee shall monitor and record the sulfur content of fuel by the fuel supplier's certification.

COMMENTS:

401 KAR 51:017 (40 CFR 52.21), Prevention of significant deterioration (PSD) of air quality applies to the plant which located in Madison County which is currently designated as attainment for all ambient air quality standards. The plant has the potential to emit more than 250 tons per year of one or more regulated criteria pollutants. Total source-wide emission of all criteria pollutants including fugitive emissions are:

Pollutant	PTE* (ton/yr)	Actual Emission** (ton/yr)
Carbon Monoxide	13.63	7.8
Nitrogen Oxides	1216.2	719.7
Sulfur Dioxide	220.25	156.3
Particulate Matter (PM_{10})	113.23	17.9
VOCs	57.9	48.5

*PTE – Potential to Emit

**Based on current data from Emission Survey Database 2007

CREDIBLE EVIDENCE:

This permit contains provisions which require that specific test methods, monitoring or recordkeeping be used as a demonstration of compliance with permit limits. On February 24, 1997, the U.S. EPA promulgated revisions to the following federal regulations: 40 CFR Part 51, Sec. 51.212; 40 CFR Part 52, Sec. 52.12; 40 CFR Part 52, Sec. 52.30; 40 CFR Part 60, Sec. 60.11 and 40 CFR Part 61, Sec. 61.12, that allow the use of credible evidence to establish compliance with applicable requirements. At the issuance of this permit, Kentucky has only adopted the provisions of 40 CFR Part 60, Sec. 60.11 and 40 CFR Part 61, Sec. 61.12 into its air quality regulations.